

I CLAIM

1. A light-emitting apparatus connectible to a thermal management system, the apparatus comprising:
 - a) a carrier including one or more light transmission regions; and
 - b) one or more light-emitting elements for generating light, each of the one or more light-emitting elements mounted on a substrate having a cooling interface, the substrate being inferiorly mounted onto the carrier in order that each of the one or more light-emitting elements are proximate to one of the one or more light transmission regions, wherein the cooling interface is directed away from the carrier and is adapted for connection to a thermal management system;wherein the one or more light-emitting elements are adapted for connection to a source of power for activation thereof.
2. The light-emitting apparatus according to claim 1, wherein each of the one or more light transmission regions are defined by either an opening within the carrier or transparent portion of the carrier.
3. The light-emitting apparatus according to claim 1, wherein the substrate comprises circuit traces electrically coupled to the one or more light-emitting elements or the substrate comprises multiple electrically conductive planes electrically coupled to the one or more light-emitting elements.
4. The light-emitting apparatus according to claim 1, wherein the substrate comprises contact pads providing electrical and mechanical connection to the carrier.
5. The light-emitting apparatus according to claim 1, wherein the carrier comprises indexing features for aligning the substrate with the carrier.

6. The light-emitting apparatus according to claim 1, wherein one or more optics are mounted onto the substrate and optically coupled to the one or more light-emitting elements.
7. The light-emitting apparatus according to claim 1, wherein each of the one or more light transmission regions are defined by an opening within the carrier and wherein one or more light-emitting elements are configured to be inserted into one or more of the openings.
8. The light-emitting apparatus according to claim 1, wherein the carrier is fabricated from a thermally conductive material.
9. The light-emitting apparatus according to claim 1, wherein the carrier is fabricated from FR4 board.
10. The light-emitting apparatus according to claim 1, wherein the carrier mates with an insert and said insert is configured to provide extraction of the light and shaping the light into a beam.
11. The light-emitting apparatus according to claim 1, wherein the carrier is fabricated from a transparent material.
12. The light-emitting apparatus according to claim 1, wherein one or more of the light transmission regions is configured as a transparent optical element, wherein the transparent optical element is selected from the group comprising a dome lens, Fresnel lens, lenticular lens array and diffuser.
13. A light-emitting apparatus connectible to a thermal management system, the apparatus comprising:
 - a) a carrier including one or more light transmission regions; and
 - b) one or more light-emitting elements for generating light, each of the one or more light-emitting elements having a cooling interface, said light-emitting elements being directly inferiorly mounted onto the carrier in order that each of the one or more light-emitting elements are proximate

to one of the one or more light transmission regions, wherein each cooling interface is directed away from the carrier and each cooling interface is adapted for connection to a thermal management system; wherein the one or more light-emitting elements are adapted for connection to a source of power for activation thereof.

14. The light-emitting apparatus according to claim 13, wherein each of the one or more light transmission regions are defined by either an opening within the carrier or transparent portion of the carrier.
15. The light-emitting apparatus according to claim 13, wherein the carrier comprises indexing features for aligning the one or more light-emitting elements with the carrier.
16. The light-emitting apparatus according to claim 13, wherein each of the one or more light transmission regions are defined by an opening within the carrier and wherein one or more light-emitting elements are configured to be inserted into one or more of the openings.
17. The light-emitting apparatus according to claim 13, wherein the carrier is fabricated from a thermally conductive material.
18. The light-emitting apparatus according to claim 13, wherein the carrier is fabricated from FR4 board.
19. The light-emitting apparatus according to claim 13, wherein the carrier mates with an insert and said insert is configured to provide extraction of the light and shaping the light into a beam.
20. The light-emitting apparatus according to claim 13, wherein the carrier is fabricated from a transparent material.
21. The light-emitting apparatus according to claim 13, wherein one or more of the light transmission regions is configured as a transparent optical element, wherein

the transparent optical element is selected from the group comprising a dome lens, Fresnel lens, lenticular lens array and diffuser.

22. A method for forming a light-emitting apparatus connectible to a thermal management system, the method comprising the steps of:
- a) providing a carrier having one or more light transmission regions;
 - b) aligning one or more light-emitting elements with one of the light transmission regions, each of the one or more light-emitting elements having a cooling interface;
 - c) inferiorly coupling the one or more light-emitting elements to the carrier; thereby forming the light-emitting apparatus.